

1. A crushing - breaking apparatus, comprising a frame having side plates facing each other and spaced apart a predetermined distance, a first cutlery device provided in said frame, said first cutlery device comprising a plurality of first projection-shaped cutleries, a second cutlery device provided in said frame, said second cutlery device comprising a plurality of second projection-shaped cutleries, said plurality of second projection-shaped cutleries being disposed on said second cutlery device at locations offset relative to said first projection-shaped cutleries of said first cutlery device, first pivot means for pivotally supporting said first cutlery device, second pivot means for pivotally supporting said second cutlery device, said first cutlery device comprising a relatively upper and a relatively lower end, said second cutlery device comprising a relatively upper end and a relatively lower end, wherein said first pivot means is situated at least near said relatively upper end of said first cutlery device, wherein said second pivot means is situated at least near said relatively lower end of said second cutlery device, first abutment means effective for at times engaging said first cutlery device to thereby stop motion of said cutlery device about said first pivot means, second abutment means effective for at times engaging said second cutlery device to thereby stop motion of said second cutlery device about said second pivot means, first motor means operatively connected to said first

(Original claim 1, Continued)

cutlery device at an area thereof which is at least closer
to said lower end of said first cutlery device than to said
upper end of said first cutlery device, and second motor
30 means operatively connected to said second cutlery device
at an area thereof which is at least closer to said upper
end of said second cutlery device than to said lower end of
said second cutlery device, said first motor means being
effective to pivotally move said first cutlery device about
35 said first pivot means as to thereby move said relatively
lower end of said first cutlery device toward said second
cutlery device, said second motor means being effective to
pivotally move said second cutlery device about said second
pivot means and generally toward said first cutlery device,
40 wherein said first cutlery device continues to so move
toward said second cutlery device and said second cutlery
device continues to so move toward said first cutlery device
as to place said relatively lower end of said first cutlery
device juxtaposed to said relatively lower end of said
45 second cutlery device and to place said relatively upper
ends of said first and second cutlery devices spaced from
each other and defining an inlet for placing work to be
crushed between said first cutlery device and said second
cutlery device.

2. A crushing - breaking apparatus according to claim 1
and further comprising abutment means, wherein as said
second cutlery device moves in a direction generally toward
said first cutlery device said second cutlery device
5 operatively engages said first cutlery device and moves said
first cutlery device in a direction of movement as said
second cutlery device is experiencing, and wherein said first
cutlery device continues to be moved by said second cutlery
device until said first cutlery device engages said
10 abutment means.

3. A crushing - breaking apparatus according to claim 1
and further comprising stop means, wherein as said second
cutlery device moves in a direction generally toward said
first cutlery device said second cutlery device operatively
5 engages said first cutlery device and moves said first
cutlery device in a direction of movement as said second
cutlery device is experiencing, and wherein said first
cutlery device continues to be moved by said second cutlery
device until said first cutlery device engages said stop
10 means thereby stopping movement of said first cutlery device,
and wherein said second cutlery device continues in its
movement generally toward said first cutlery device even
after movement of said first cutlery device has been stopped
by said stop means.

4. A crushing - breaking apparatus according to claim 3 and further comprising second stop means, and wherein said second cutlery device continues movement generally toward said first cutlery device after said first cutlery device has stopped in movement until said second cutlery device operatively engages said second stop means.

5. A crushing - breaking apparatus according to claim 1
wherein said first motor means comprises a first hydraulic
cylinder assembly with a first housing and a first piston
responsive to the pressure of hydraulic fluid supplied
5 thereagainst, wherein said second motor means comprises a
second hydraulic cylinder assembly with a second housing
and a second piston responsive to the pressure of hydraulic
fluid supplied thereagainst, and wherein the force of the
first piston is maintained at a magnitude less than the
10 force of said second piston.

6. A crushing - breaking apparatus according to
claim 1 and further comprising means for sensing whether
said second cutlery device is applying a force against said
first cutlery device and the work carried between said first
5 and second cutlery devices to be of a magnitude greater than
a preselected magnitude, second means upon said force being
sensed to be greater than said preselected magnitude being
effective to cause at least said second cutlery device to be
moved as to thereby increase the space between said first
10 and second cutlery devices to enable the work to fall
downwardly between said first and second cutlery devices
thereby placing the work in a location wherein a greater
mechanical crushing advantage by at least said second
cutlery device is attained as to crush said work without
15 requiring said force to be of a magnitude greater than said
preselected magnitude.

7. A crushing - breaking apparatus according to claim 1 and further comprising first means for sensing whether said second cutlery device is tending to apply a force against said first cutlery device and the work carried
5 between said first and second cutlery devices to be a magnitude greater than a preselected magnitude, second means upon said force being sensed to be greater than said preselected magnitude being effective to cause at least said
10 second cutlery device to be moved as to thereby increase the space between said first and second cutlery devices to enable the work to fall downwardly between said first and second cutlery devices thereby placing the work in a new location wherein a greater mechanical crushing advantage by
15 at least said second cutlery device is attained as to crush said work without requiring said force to be a magnitude greater than said preselected magnitude, wherein after said work has been placed in said new location and said first means is again sensing that said second cutlery device is
20 again tending to apply a force against said first cutlery device and the work carried between said first and second cutlery devices to be a magnitude again greater than said preselected magnitude, said second means upon said force being again sensed to be greater than said preselected
25 magnitude again being effective to again cause at least said second cutlery device to be moved as to thereby again

CLAIM 7 Cont'd

increase the space between said first and second cutlery
devices as to again enable the work to again fall further
downwardly between said first and second cutlery devices
30 thereby placing the work in a location different from said
new location wherein a still greater mechanical crushing
advantage by at least said second cutlery device is attained
as to said work without requiring said force to be a
magnitude greater than said preselected magnitude.